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energy into an electrical signal; disposing a membrane on the resistor in a given direction at an orientation of <100> for controlling a thermal discharge from the resistor; and etching the etching layer.

4. A calorimeter according to claim 1; wherein the resistor comprises a superconductor having a double-layer structure.

5. A calorimeter comprising:

a substrate having a tri-layer structure comprised of a support substrate, an etching stop layer disposed on the support substrate, and an etching layer disposed on the etching stop layer and having a preselected thickness and a hollow portion;

an absorber disposed over the substrate for absorbing radiation energy and converting the absorbed radiation energy into thermal energy;

a resistor connected to the absorber for converting the thermal energy into an electrical signal; and

a membrane disposed over the hollow portion of the etching layer and spaced-apart from an upper main surface of the etching stop layer by the preselected thickness of the etching layer, the membrane being connected to the resistor for controlling a thermal discharge from the resistor.

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6. A calorimeter according to claim 5; wherein the resistor comprises a superconductor having a double-layer structure.

7. A calorimeter comprising: a substrate having a tri-layer structure and comprised of a support substrate, an etching stop layer disposed on the support substrate and having a main surface, and a silicon etching layer having a planar orientation of (100) and disposed on the main surface of the etching stop layer; an absorber disposed over the substrate for absorbing radiation energy and converting the absorbed radiation energy into thermal energy; a resistor connected to the absorber for converting the thermal energy into an electrical signal; and a membrane disposed on the resistor at an orientation of <100> and spaced-apart from the upper main surface of the etching stop layer by a thickness of the etching layer.

8. A calorimeter according to claim 7; wherein the resistor comprises a superconductor having a double-layer structure.

9. A calorimeter according to claim 7; wherein the etching layer has a hollow portion; and wherein the membrane is disposed over the hollow portion of the etching layer.

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